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Remington Medalist 1951

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OUR COVER

DR. HUGO H. SCHAEFER

Remington Medalist 1951

THE selection of Dr. Hugo H. Schaefer as this year's recipient of the Remington medal is certain to receive the unanimous endorsement of pharmacists everywhere.

There are few places in American pharmacy where Dr. Schaefer has not made valuable contributions and advanced the cause of the profession which he has served for almost forty years.

Dr. Schaefer was the son of a distinguished pharmacist, the late Dr. George Ludwig Schaefer, who for many years was the vice-president and technical director of the New York Quinine and Chemical works.

Hugo Schaefer graduated in pharmacy from the New York College of Pharmacy in 1913. Several years later he studied at the University of Berne, Switzerland, where he received the Ph. D. Dr. Schaefer was for a number of years a member of the faculty at the school of pharmacy at Columbia University and he became Dean at the Brooklyn College of Pharmacy in 1937.

Dr. Schaefer has been very active in the American Pharmaceutical Association. He is a past-president and has served as its treasurer for a number of years. He is at present the president of the American Association of Colleges of Pharmacy, a member of the Committee of Revision of the United States Pharmacopeia and a member of the National Formulary Committee.

Dr. Schaefer has been particularly active in the field of drug standardization and legislation and is the chairman of the A. Ph. A. committee on legislation. He is also chemist to the New York Board of Pharmacy.

Dr. Schaefer is well known for his keen analytical mind, his forceful personality and his energy and vitality. Many have been his contributions to American pharmacy and the honor of the Remington medal is justly deserved.

EDITORIAL

THE THREAT TO FAIR TRADE

NOTHING in recent years has caused greater concern in the ranks of retail pharmacy than the invalidation by the Supreme Court of the non-signer clause in Fair Trade agreements. This, it is true, may be the end of Fair Trade but, in the interest of the small retailer, let us hope not.

The arguments in favor of Fair Trade are well known. One has only to recall the chaotic conditions prior to the Miller-Tyding's Bill to appreciate why most manufacturers and retailers prefer to operate under Fair Trade agreements. It is only a few unscrupulous individuals who wish to exploit the market and use loss-leaders and price cutting for their personal advantage. Such individuals loudly proclaim their interest in the consumer as their motivation but close examination of their policy usually shows their consumer interest to be a mockery.

The opponents of Fair Trade are a motley group indeed. Not only do we have a few retail outlets such as those described but certain so-called consumer groups have been violently opposed, aided and abetted by the Federal Trade Commission and the Justice Department. The motivation here is probably that of organized labor which for years has proceeded on the assumption that all business men are avaricious rascals trying to exploit the poor working man. Such labor philosophy has been deliberately inculcated over the years by a few union leaders and politicians as a means of rallying the support of the rank and file. It is always a simple matter to convince a man that his employer takes advantage of him since such a suggestion falls on fertile soil. If labor was taught otherwise it would be impossible to get them to take drastic action in trying to force the employer to meet unreasonable demands.

The small businessman, today, is one of America's forgotten men. He is not organized into pressure groups since even his trade associations may not take joint restrictive action without prosecution stemming from the provisions of the antitrust laws.

Powerful unions can and do tie-up a whole industry even in times of emergency with little or nothing to fear from government, but if even two small retailers try to force a competitor to carry on in a matter compatible with their own continued existence it is in restraint of trade, and the Department of Justice moves in with a vengeance. After all, two retailers are of little importance come election time but a large union—well that is different.

Actually, many retailers have less annual income than the rank and file of American labor. In addition, they cannot compete with large organizations such as department stores and supermarkets without some price protection such as that which Fair Trade gives. This is not an idle statement but the stark truth. The question then is, "Shall we accept the slow but sure death of the small retail establishment in America?" There are those misguided individuals who answer "yes" feeling that if small retailers cannot compete they do not deserve to survive. This is a superficial analysis of the situation to say the least. If such is allowed to take place the ultimate end will be big business and big labor without the cushioning effect of the thousands of small businessmen of today. This is the very thing which anti-trust legislation has sought to prevent over the years. This, however, will not be the end of the tragedy. With big business and big labor left alone in the field, government will be unable to cope with the situation and it will be forced to join either one or the other. If it joins forces with business we have then a fascist state; if it joins labor we will have a socialist state. In either case our American form of government will become only a memory and the individual, his hopes, plans and fears will be meaningless.

Unfortunately, there are all too many Americans who view these prospects either with complacency or expectation. They are the real threat to the American way of life not some citizen in a foreign land. Many peoples overseas have lost the freedom which we still, by God's grace, possess. Gladly would they come to our shores to enjoy its bounty yet here are we frittering it away as not worth the effort to retain it.

The small retailers of America must *to a man* organize to fight a do or die battle to preserve the principles of Fair Trade. Its importance transcends simply their own economic survival since its loss will eventually spell disaster for the American way of life.

Legislators who may be called upon to take action on either a state or national level must remember their solemn pledge to protect America. Labor and big business have had their day. Are the little men of America to be forgotten? There are times when politicians must be statesmen if the country which they love is to continue as "the land of the free and the home of the brave."

L. F. TICE

THE SOLUBILITY OF TERPIN HYDRATE IN ALCOHOL * **

By Harris B. Bernstein and Martin Barr †

THE solubility of terpin hydrate ($C_{10}H_{20}O_2.H_2O$) in alcohol has long been accepted as 1 Gm. in 13 cc. Several pharmacy and chemistry handbooks and texts (1-4), including the official compendia (5-7), state that one in thirteen is the alcohol solubility of terpin hydrate at 25° C. However, careful observations made by the senior author, while instructing dispensing classes, revealed that terpin hydrate is soluble in alcohol to a greater extent than previously believed. It was, therefore, the purpose of this investigation to determine the correct solubility and any related facts concerning this problem.

Experimental

Powder and crystal samples of Terpin Hydrate N.F. IX manufactured by three major chemical companies, A, B and C, were used. The melting point of each sample (dried to constant weight) was checked to verify official quality. Official alcohol (95% by volume of C_2H_5OH) was used as the solvent. Specific gravity determinations by the pycnometer method were made to verify the percentage strength (8) of the alcohol.

Six 120 cc. glass-stoppered bottles were washed and then dried in a hot air oven at 110° C. for one hour. Six rubber stoppers were heated in a boiling sodium hydroxide solution (10%) for fifteen minutes, to remove any loose or alcohol soluble substances present in the rubber. Then, the stoppers were boiled for three, ten minute periods in three fresh portions of distilled water. As a final measure

* From the Pharmaceutical Research Laboratory, Philadelphia College of Pharmacy and Science.

** Submitted to the Graduate School in partial fulfillment of the requirements for the degree of Master of Science in Pharmacy.

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the stoppers were washed in the official alcohol. After the stoppers were allowed to dry at room temperature, they were inserted into the dried bottles.

Twenty-five grams of each terpin hydrate sample were weighed on a prescription balance and placed into one of the six clean rubber-stoppered bottles. Then 100 cc. of the alcohol were poured into each bottle. The rubber stoppers were replaced, and then, by inverting the bottles and hitting the stoppers against the table, air tight closures were obtained. After being manually shaken, the bottles were placed into a rotating water bath held constant at 25° C. for twenty-four hours.

Six 4 oz. funnels and six 4 oz. prescription bottles were washed and then dried in the hot air oven at 110° C. for one hour. The plastic bottle caps were also washed but were dried at room temperature on absorbent paper. Eighteen 60 cc. glass-covered weighing bottles were washed and dried in the same manner; then each bottle and its lid was marked according to the sample it was to contain. With the use of an analytical balance, each marked weighing bottle and its cover was weighed. After twenty-four hours of rotation in the water bath, the rubber stoppered bottles were removed, and their solutions immediately filtered through filter paper held by the funnels into the labeled prescription bottles. The saturated solutions, now in capped prescription bottles, were ready for assay.

The assay used is similar in part to that described in the A. O. A. C. (9). Three aliquot portions of each saturated solution were poured into individual weighing bottles. Covers were placed on the weighing bottles and each bottle with its solution was weighed. Then, the weighing bottles (covers removed) were placed into a vacuum drier.* When the alcohol appeared to be totally evaporated, the weighing bottles, their covers and the terpin hydrate were weighed to constant weight. By determining the weight of terpin hydrate obtained by the evaporation of the alcohol from the saturated solutions, it was easily possible by calculation to determine the solubility of terpin hydrate in alcohol. The assay was repeated several times to verify the original results.

The mathematical procedure utilized for the determination of the solubility of terpin hydrate in alcohol is illustrated in Table I.

---

* Stokes vacuum drier, Model FJS51-2 used at a pressure reduced to twenty inches of mercury.

TABLE I

ESTABLISHING SOLUBILITY OF TERPIN HYDRATE IN ALCOHOL

Sample Terpin Hydrate	Powder A	Crystal A	Powder B	Crystal B	Powder C	Crystal C
Wt. of Alcoholic Saturated Solution (Gm.)	10.6835	11.0841	14.331	13.5974	12.4195	14.6232
Wt. of Terpin Hydrate (Gm.)	1.4788	1.5343	1.9818	1.8709	1.7215	2.0204
Wt. of Alcohol (Gm.)	9.2047	9.5498	12.3493	11.7265	10.6980	12.6028
Solubility (Gm. of Alcohol for 1 Gm. of Terpin Hydrate)	6.225	6.224	6.231	6.268	6.214	6.238
Solubility (cc. of Alcohol required for 1 Gm. of Terpin Hydrate-determined by Gm. ÷ sp. gr.)	7.685	7.684	7.692	7.738	7.671	7.701

For the purpose of verifying the assay procedure used, the solubilities of the terpin hydrates of two companies (one powder, one crystal) were determined using known quantities of terpin hydrate and alcohol in the procedure. Samples of terpin hydrate were quantitatively weighed and transferred from weighing bottles into 120 cc. glass bottles (with rubber stoppers); quantities of alcohol, sufficient to dissolve the terpin hydrate, were added to these bottles from burettes. The bottles were tightly closed with the rubber stoppers and placed in the rotating water bath, constant at 25° C., for twenty-four hours. The two control samples were assayed in the same manner as those under investigation.

Data verifying the procedure used for the determination of the solubility of terpin hydrate in alcohol are shown in Table II.

Discussion

It is evident from the data in Table I that the solubility of terpin hydrate in official alcohol is 1 Gm. in 7.7 cc. Although only the data for one determination of the solubility of each terpin hydrate sample in alcohol are given in Table I, the same solubility was found as the result of other determinations for each sample.

The procedure used for this solubility study is verified in Table II, which shows the average of three determinations for each sample.

Results were checked further from a practical pharmaceutical viewpoint. Saturated solutions of terpin hydrate were prepared

extemporaneously and it was demonstrated that the solubility was about 1 Gm. in 7.7 cc. of alcohol. It was further observed throughout our work that terpin hydrate powder goes into solution more rapidly than the crystals which was to be expected.

TABLE II

VERIFYING THE PROCEDURE USED FOR THE DETERMINATION OF THE SOLUBILITY OF TERPIN HYDRATE IN ALCOHOL

Sample Terpin Hydrate	Powder	Crystal
Starting Ratio (Gm. Terpin Hydrate/cc. Alcohol)	1:7.9992	1:10.478
Wt. of Alcoholic Solution (Gm.)	5.9747	11.2187
Wt. of Terpin Hydrate (Gm.)	0.8004	1.1899
Wt. of Alcohol (Gm.)	5.1743	10.0288
Assay Ratio (1 Gm. terpin hydrate/Gm. Alcohol)	1:6.4646	1:8.436
Assay Ratio (Gm. Terpin Hydrate/cc. Alcohol) (S. G. alcohol = 0.81)	1:7.98	1:10.41

Summary

1. Terpin hydrate was found to be more soluble in alcohol than is mentioned in the chemical and pharmaceutical literature.

2. One Gm. of terpin hydrate was found to be soluble in 7.7 cc. of alcohol.

3. Terpin hydrate powder goes into solution in alcohol more quickly than the crystals and it is therefore the more convenient form for prescription use.

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CALCIUM THERAPY IN THE TREATMENT OF ALCOHOLISM

By Cyril C. O'Brien*

IT IS widely recognized that there is no known "cure" for alcoholism. Once an alcoholic, always an alcoholic. Uncontrolled drinkers who have been accurately diagnosed as alcoholics cannot learn to drink in moderation. Salvaging an alcoholic involves teaching how to become an abstainer. In the path of total abstinence lie the most important steps towards complete rehabilitation of those addicted to drink. It is the full realization of the oft repeated story of "one drink is too much and a hundred are not enough."

The task confronting the physician, the psychologist, the counselor, in fact all those who deal with the alcoholic, is essentially the same, namely, effecting the constant postponement by the alcoholic of that first drink. To drinkers who have established a certain level of tolerance for alcohol over a period of years, this often presents a very difficult problem. The solution of such a problem is intricate, since its ramifications may entail the applications of research from many fields of endeavor. Frequently, the initial step in the control of the problem is an adequate consideration of its biochemical and physiological aspects.

Advanced cases of alcoholism are generally immune to psychotheraphy, until some of the biochemical disabilities associated with the alcoholism have been at least partially eradicated. An individual who has become more or less physically and mentally depleted as a result of overindulgence in alcoholic beverages, requires immediate help of such a nature as to enable him to achieve a speedy, initial sobriety, which in turn will be a lift in building the confidence of the abnormal drinker for subsequent resistance against the onslaughts of the disease.

There are different methods of helping the alcoholic hurdle the hump of his concomitant physical, physiological, and biochemical disabilities. The aversion technique has been used successfully in many cases, but its approach is negative, and it lacks a supportive,

* Consulting Psychologist, Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin.

medicinal therapy so necessary in the follow-up of alcoholics. Those who have "broken through" this so-called conditioned reflex method, one or more times, find its relative potency somewhat proportionately reduced. The administration of tetraethylthiuram disulphide (Antabuse), while scarcely lacking in associative potency as a deterrent, has attendant dangers which few alcoholics care to risk. To date the results from the use of adrenal cortical hormones in the rehabilitation of alcoholics have been rather disappointing. Recent emphases upon "salt water cures" are partially hopeful, but attack only one phase of the biochemical needs.

The express purpose of this paper is to hypothesize on the reasonableness of calcium therapy as both a corrective and supportive agent in the medicinal aid to the alcoholic; to consider important biochemical and pharmaceutical implications for abnormal drinkers; to adduce practical evidence of the effectiveness of calcium therapy in the treatment of alcoholism; and finally, to pose questions for further research.

Since so many alcoholics have a calcium deficiency, and inasmuch as calcium is a normal constituent of the body tissues, it is possible that physical need or tolerance for alcohol may be a result of lack of calcium. Although there has been considerable published research on this element, many points are still highly controversial. There is sufficient evidence to date, however, to indicate the safe and effective use of calcium in the treatment of alcoholism. In the past, physicians frequently hesitated to use calcium for chronic and acute ailments, which were the result of such deficiency, owing to the shock and palpable toxicity following the dispensing of many calcium preparations. Calcium therapists have shown that only the diffusible part of the total calcium ingested is the most beneficial to the organism. Where much non-diffusable calcium must be consumed to effect sufficient ingestion of diffusible portion, there is often the immediate risk of metastatic calcification. This situation makes essential the use of calcium in a form and manner conducive to maximum results and with minimum peril to the smooth functioning of the organism. The use of calcium and other minerals in medicinal preparations in treating metabolic insufficiency has already been generally accepted. It has been suggested by Arnold (3) that calcium possesses truly remarkable synchronizing properties. In addition to its powers of synchronizing the assimilation of vitamins from the diet, it exercises a profound influence on the

balancing and synchronization of the endocrine glands. Arnold maintains that intensive calcium therapy is best administered by utilizing an intravenous technique.

Cooper (5) studied comparable samples of calcium gluconate and other preparations of calcium, and found in one instance as much as five times the amount of calcium available in diffusible form, where each comparable sample was matched for calcium strength. As a means of determining indication or contraindication for using calcium, serum evaluation is not necessarily a good criterion of appraisal, because Cantarow (4) has proved that an alkalosis may be the result of a blood calcium determination, when an acidosis occurs simultaneously in the tissues.

Where calcium therapy has been most effective in the treatment of alcoholism, the base of the preparation is amphoteric in action and soluble in both acid and alkaline media (to pH 12.1). The latter is higher alkalinity than occurs in the human body (Cantarow cites pH 9.6).

Cantarow (4) claims that, even though the ratios between diffusible and non-diffusible calcium have always been found to be constant in normal states, it does not necessarily follow they will assume the same numerical consistency in disease conditions. Only in normal states can such ratios be correctly calculated.

If there is one disease with which most physicians are familiar, and which at the same time is analogous to alcoholism, it is anoxia. Wilson (9) states that "in this condition there is a lower combining power of CO_2. Calcium increases the CO_2 combining power of the blood plasma. It is my belief that an alcoholic is hypocalcemic because of a deficiency in ionizable or diffusible calcium. The difficulty of positively proving this from serum calcium readings is apparent." Cantarow (4) is convinced that the average American dietary is lacking in calcium, chiefly because of its low milk and dairy product content. Cantarow quotes Sherman, who found the average American diet contains 0.45 Gm. The approximate daily requirement is represented more appropriately by 1 Gm. What role do these figures play in the American drama of more than 750,000 alcoholics?

In most cases of alcoholism, hypoglycemia is present. Certainly, calcium is indicated in hypoglycemia with glycogenesis in the liver. Cantarow (4) suggests that carbohydrate loss may be traced to a superabundance of sarcolactic acid and lactic acid, and calcium nullifies the extremes by means of the adrenalin structure.

Arnold (1) from his experiments on thoroughbred horses found that calcium administration increased traits of stamina, speed, control, and longevity. He also produced evidence to indicate that the mare with foal becomes hypocalcemic during pregnancy, since the drawing from the calcium reserve of the body is transmitted to the offspring. In the April, 1941, issue of "Thoroughbred Breeding," Arnold claims that phosphorous lack and other vitamin deficiencies are not as serious a problem as a dearth of calcium, since the former can be controlled through diet. Much of the literature on calcium therapy stresses the fact that the effective absorption of assimilable calcium is best accomplished by intravenous technique.

Arnold (3a) gives evidence of the practical results of the intravenous administration of calcium in a survey of 300 cases of alcoholism in California. Ages ranged from 25 to 55 inclusive. After a follow-up of 22 months for relapses, 246 or 82 per cent of the 300 were still total abstainers, while 54 or 18 per cent suffered relapses. In the 25 to 35 age group, 37 or 88 per cent of 42 cases became abstainers. In the 36 to 45 age group, 98 or 83.8 per cent of 117 cases succeeded in maintaining abstinence. In the 46 to 55 age group, 109 or 78.3 per cent of 139 cases were still maintaining complete sobriety after the twenty-two month period. An analysis of the 300 cases showed that 151 were hospitalized for 14 days, and 89 for 4 days. The remaining 60 cases were not hospitalized. A complete course of 25 injections was given to all the hospitalized cases.

Warren (8) has used calcium therapy with alcoholics with marked success, as is evidenced by recent clinical case histories. Several challenging cases in the Michigan area have come under his surveillance. The author of the present article has witnessed objective proof of the value of such treatment for abnormal drinkers in the Milwaukee area.

From a somatopathic point of view, an adequate therapeutic approach to alcoholism will aid in the re-establishment of normal general metabolism; correct endocrine imbalances in accordance with the individual physiological and other idiosyncracies of an organism, without the utilization of hormones; increase CO_2 combining power; decrease cell permeability; render invaluable assistance in correcting or overcoming anoxia of various types—anaemic, anoxic, stagnant, histo-toxic: reduce neuro-muscular irritability;

assist in maintaining acid-base balances; aid in the restoration of normal passage of impulses over myoneural junctions, and will help to restore blood pH or alkaline reserve; in fine, bring to fruition the restoration of both mental and physical co-ordination.

With respect to future research in the realm of biochemical and other somatopathic factors contributing to alcoholism, there still seems to be need of definite answers and sufficient generalizations concerning the following: Does an alcoholic have a condition of acidosis or alkalosis? Is the blood pH higher than normal or lower? Is the CO_2 tension high or low? Does the CO_2 combining power indicate acidosis or alkalosis? Is the acid-base balance compensated in alcoholism? Does high CO_2 retention indicate a compensated anoxia, associated with excess lactic acid retention?

Cantarow (4) states "It is well recognized that the presence of an adequate store of glycogen in the liver serves to protect it from injury." Could this mean that the hypoglycemia associated with alcoholism leaves the liver of an alcoholic more vulnerable to cirrhosis?

Calcium therapy is excellent treatment for alcoholic patients with cirrhosis or jaundice. It is generally conceded that calcium is beneficial in such cases, but the specific reasons for results require clarification.

It should not be concluded from the present discussion that calcium therapy is a panacea for all alcoholic ills. The subject of alcoholism ramifies in many directions. This article has been mainly concerned with certain biochemical aspects—a very important segment of the over-all problem. Alcoholism is truly a somatopathic and psychosomatic problem. A complete appraisal of the entire personality of each individual alcoholic is frequently an essential step towards a permanent solution. The first step is providing for any bodily deficiencies. When this has been accomplished, the second stage in the process, that of ironing out the psychological and other humps, is made much easier. Generally, psychotherapy is most effective when the body is least demanding. A multi-discipline approach including all conceivable aspects of each individual problem will ensure encouraging and lasting results.

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THE HISTORY OF RETAIL PHARMACY IN THE CITY OF BROOKLYN 1830 TO 1840

By Herbert C. Raubenheimer*

IN THE early thirties, of the nineteenth century, the doctors of Brooklyn had shed the function of storekeeping, leaving the dispensing of drugs over the counter to the several druggists and chemist's shops which were scattered throughout the village. Some of these were equipped on an elaborate scale. Besides putting up physician's prescriptions, the druggists sold patent medicines, both American and British, as well as perfumes, cosmetics, and other fancy articles. Such items seem familiar enough, but there were features in their advertising which brings a reminder of discarded medical practices, such as the assurances that "Fresh Leeches are constantly kept for sale, or applied when required" (1).

During 1831, J. V. E. Vanderhoef, who conducted a retail pharmacy at 110 Fulton Street, Brooklyn, started advertising in the Brooklyn Directory and I would like to quote his advertisement of that year (2). It is as follows:

> J. V. E. Vanderhoef, No. 110 Fulton Street, Brooklyn, keeps constantly on hand a genuine assortment of Drugs, Medicines, and Perfumery, wholesale and retail, which he will sell as low as they can be purchased in New York. Families may rely on procuring genuine articles at the above place. Also, a general assortment of genuine Patent Medicines, viz:—Steer's Chemical Opodeldoc, Whitwell's Chemical Embrocation, Whitwell's Aromatic Snuff, Cephalic Snuff, Soda Powders, British Oil, Harlaem Oil, Bateman's Drops, Godfrey's Cordial, Seidlitz Powders, etc. Double Distilled Rose Water, Wholesale or Retail.
>
> LEECHES applied or for sale. Medicine Chests, for families and ships, with approved directions, put up with neatness and dispatch. Also a general assortment of Dye Woods and Dye Stuffs. May 1831.

* Professor of Pharmacy, St. John's University, College of Pharmacy, Brooklyn, N. Y.

This advertisement is similar to the ads he had been running in *The Star,* a weekly newspaper of that period. The new portions of this advertisement are the statements about Leeches, Medicine chests, and dye stuffs. The 1831 issue of the *Brooklyn Directory* lists only the store on Fulton Street, no mention being made of the store that Vanderhoef conducted at Sands Street (16).

Vanderhoef continued the same type of advertising in the 1832-33; 1833-34; 1834-35; 1835-36; and the 1836-37 issues of the *Brooklyn Directory.* In the 1832 advertisement he called his store a "PHARMACOPOLIUM" and in the 1836-37 advertisement his establishment was listed as a Drug and Medicine Store. He had no ad in the 1838 *Brooklyn Directory* but in the population list the store was listed as Smith and Dr. Vanderhoef. He no doubt had taken on a partner. The doctor title was of interest to me because in the 1833-34, the 1834-35, and the 1835-36 listing in the *Brooklyn Directory* he was called Dr. J. V. E. Vanderhoef, though I could find no record of the fact that he had received a medical degree.

The year 1831 also saw the establishment of a drug store at Fulton and Hicks Street by Dr. J. W. Smith (3).

The 1832-33 *Brooklyn Directory* had advertisements of four retail pharmacies. Vanderhoef had a one-quarter page ad similar to his previous ones and he called his store a PHARMACOPOLIUM (4). W. P. Blagrove also had a one-quarter page advertisement. He was located at the corner of Main and York Streets and he listed himself as a Druggist and Pharmaceutical Chemist (5). This is the first record that I could find of the title, Pharmaceutical Chemist His ad was similar to Vanderhoef's. S. W. Frisbie, located at 67 Fulton Street, had a whole page ad. His advertisement was somewhat different and I quote it (6):

CIRCULAR

S. W. Frisbie, at Apothecaries Hall, No. 67 Fulton Street, a few doors above Hicks Street, Brooklyn, being convinced that knowledge is wealth as well as power, takes this method to inform the inhabitants of Brooklyn and its vicinity, that he now sells Drugs, Medicines, Cosmetics, Perfumery, Fancy and Useful Articles, etc. at the lowest possible rates; having very much reduced his retail prices and increased his stock of goods, especially in the perfumery department.

All articles sold by S. W. Frisbie are warranted to be of as good a quality as can be obtained here, or in New York.

Particular attention will be paid to putting up Prescriptions with accuracy.

S. W. Frisbie manufactures and sells at the lowest prices, Seidlitz Powders, Soda Powders, Blister Plaster, Mercurial Ointment, Black Varnish for Leather, and various Patent Medicines, mostly in use.

S. W. Frisbie having been appointed Sole Agent for Long Island, of the American Hygeian Vegetable Universal Medicine —[he extols its value as compared to the British article and also points out that in regard to value the buyer will receive twice as many pills as in the British package]. Any person wishing to become a Sub Agent, for the sale of these pills, will please make applications as above. May 1832.

This advertisement is interesting because:

1—It is the first record of a price reduction.

2—It is the first record of advertising the compounding of prescriptions.

3—It is the first record of advertising an agency.

4—It is the first record of a pharmacist advertising that he manufactures some of the articles that he has for sale.

Another advertisement in the 1832-33 *Brooklyn Directory* was that of T. Jefferson Jones, M. D., who had a Dental practice and also a store for the sale of Drugs, Medicines and Perfumery. This ad also highly recommended the Persian Dentifrice (7), mentioned in my previous article (16).

In 1833 J. W. Smith at Fulton and Hicks Streets started advertising in the *Brooklyn Directory*. He called himself a Chemist and his establishment was a Drug and Chemical store. His ad was the same as others with the following exceptions: he stated "pharmaceutical preparations of this establishment made under his immediate superintendence, pure and unadulterated" and he also advertised "cupping and leeching by an experienced person." In the 1834-35 issue of the *Brooklyn Directory* he had a more pretentious ad. His advertisement covered two pages, one page was devoted to a picture

of his store and the other page was for his regular notice of stock, etc. In the 1835-36 *Brooklyn Directory* he had a one-page ad with the top half showing the picture of his store and the lower half his notice. This advertisement is of interest in that the last statement was "Graduate of the New York College of Pharmacy." This is the first time that such a statement appeared in any drug store ad and Smith is perhaps the first Brooklyn graduate of the New York College of Pharmacy (8). The "Roster of Graduates" of the College of Pharmacy of the City of New York, lists a James W. Smith as a graduate of the class of 1832 (17).

In 1834 W. Blagrove must have taken on a partner as the Brooklyn Directory of that year has a listing; Blagrove, William and Powers, R. D., druggists, Fulton and Sands Streets (9).

The year 1835 saw a new advertiser in Madison D. Charlot. He conducted a drug store at Fulton and Orange Streets. He had a one-page ad similar to others and he listed himself as an Apothecary and Chemist (10).

The year 1836 saw another newcomer. John G. Howard, druggist and chemist of Hicks and Fulton Street, had a one-half page ad in the *Brooklyn Directory*. Among other items he advertised Shaker's Herbs and Roots, Florida Water, Eau de Cologne, Honey Water, and Lavender Water. Smith also must have taken on a partner at this time, as his ad was headed Smith and Winteringham (David L.) (11).

In 1838 the ad of Edgar W. Stevens, Druggist and Apothecary, at 77 Sands Street, appeared. His ad was similar to the others and it was repeated in the 1839 and 1840 issues of the *Brooklyn Directory* (12).

Stephen P. Leeds was the next newcomer. He had four advertisements in the 1839 *Brooklyn Directory*. He advertised himself as a chemist and wholesale and retail dealer in drugs, medicines, dye stuffs. He had two stores, one located at Fulton and Hicks Streets and the other at 251 Fulton Street, corner of Johnson. The store at Fulton and Hicks Streets may have been purchased from John G. Howard or he may have been a competitor. I could find no record of a sale. One ad of Leed's was a half page wherein he advertised that he was the sole Brooklyn agent for Dr. Taylor's Balsam of Liverwort, a cure-all. A one-third page ad was used for Fancy Soaps and Perfumery. A quarter page advertised Vanilla syrup for flavoring ice cream, candies and custard and finally he had

another ad, one-quarter of a page, for Dr. Taylor's Balsam of Liverwort (13).

This concludes the record, in so far as I could trace it, of retail pharmacies in the City of Brooklyn between 1830-40. I do not claim that these are the only retail pharmacies in operation at that time, but only those whose history I could readily trace. If anyone has any further information regarding retail pharmacies of that period I would appreciate hearing about them. This paper is a collection and presentation of records and statistics as I could trace them. One of the principal divisions of the history of pharmacy is the history of retail pharmacies and this paper falls into that division. In a later paper I hope to be able to deal with the period from 1840 to 1850 in the City of Brooklyn.

I have not mentioned homeopathic pharmacy in this paper. Although Dr. Hans Burch Gram first practiced medicine according to the law of homeopathy in New York in 1825, there is no record of a homeopathic pharmacy in Brooklyn until a much later date (14). The vigor of "Young Physic," as homeopathy was called, was apparent in the establishment of a pharmacy devoted exclusively to the manufacture and sale of medicines. This, however, was not undertaken until 1850, by J. T. P. Smith, who located in Court Street, near City Hall (15). I hope in the near future to devote a paper on homeopathic pharmacies in the City of Brooklyn.

Every calling, trade, art and profession has its history. Retail pharmacists should become acquainted with this interesting and fascinating subject. I hope that this short paper may stimulate some research into the history of the early retail pharmacies concerning which we have no published record at the present time.

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(4) *Brooklyn Directory*, 1832-33.

(5) *Brooklyn Directory*, 1832-33.

(6) *Brooklyn Directory*, 1832-33.

(7) *Brooklyn Directory*, 1832-33.

(8) *Brooklyn Directory*, 1833-34; 1834-35; 1835-36.

(9) *Brooklyn Directory*, 1834-35.

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(11) *Brooklyn Directory*, 1836-37.

(12) *Brooklyn Directory*, 1838; 1839; 1840.

(13) *Brooklyn Directory*, 1839.

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THE A. PH. A. STUDENT CONFERENCE—1951

By Martin Barr*

THERE probably has never been more interest and enthusiasm shown by any group of pharmacy students than those participating in the A. Ph. A. Student Conference, 1951, held at Rutgers University, College of Pharmacy, April 7, 1951.

The conference, which had as its theme, "The Pharmacy Student Views His Future", was participated in by representatives of the A. Ph. A. Student Branches of the following colleges of pharmacy: Connecticut College of Pharmacy, Temple School of Pharmacy, Fordham College of Pharmacy, Philadelphia College of Pharmacy and Science, Columbia College of Pharmacy, Brooklyn College of Pharmacy, St. John's College of Pharmacy and Rutgers College of Pharmacy. A total of 540 students and their guests were registered for the conference.

Morning Session

Dr. Thomas D. Rowe, Dean of Rutgers University, College of Pharmacy, opened the morning session with "Greetings from Rutgers". He expressed gratitude for the fine representation in the conference by the students from the various schools, and hoped that this would be a yearly affair.

The first speaker was M. Lawrence Berman, of the University of Connecticut College of Pharmacy, whose topic was "The Evaluation of the Pharmacy Curriculum as It Pertains to Retail Pharmacy". He stated that since the pharmacist practices in a society which is social in nature, and since he, like any other individual, needs the enrichment of life which comes from an understanding and appreciation of civilization, he must, in order to achieve professional status and not to merely be recognized as a technician, have an education in the liberal arts along with his scientific training.

Speaking on "What Must We Do to Stimulate New Fields of Endeavor for Pharmacy Students?", Gerald Jackson, of Temple University School of Pharmacy, advocated the revision of the pharmaceutical curriculum to allow for greater specialization in the various fields of pharmacy. By offering the pharmacy student a choice of

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various curricula which enables him to specialize in different fields such as retail pharmacy, hospital pharmacy, public health work, salesmanship, administration, manufacturing, research, and teaching, Mr. Jackson felt that the student would become more sincere and earnest in his efforts, which will result in making the graduate a more proficient and successful pharmacist in his chosen field of endeavor.

Leo D. Connor, of Fordham University College of Pharmacy, addressed the assembly on "Does Retail Pharmacy Offer Professional Satisfaction?" After quoting a few lines from the Oath of Maimonides, Mr. Connor stressed that too many pharmacists are attracted to the monetary rather than the philosophical rewards which professional pharmacy offers, and that each individual pharmacist will only reap from his profession in proportion to what he places into it.

A topic of utmost interest to the assembly because of present international events was presented by William M. Plum, Jr., of the Philadelphia College of Pharmacy and Science. In his address "Is Pharmacy Gaining Proper Recognition in Government Service?" Mr. Plum told the audience that he believes that the Army and Navy have sufficiently opened their ranks according to their present needs for the commissioning of qualified pharmacists, but that it is up to the pharmacist himself to find these openings and to assume an aggressive attitude necessary for securing these opportunities. He pointed out that since it is possible that some pharmacists will enter the Armed Forces as enlisted men because of limitations on the number of commissions available, the respective services should see to it that these enlisted pharmacists perform pharmaceutical or pharmaceutically related duties when these functions are called for, and that the mistake of World War II, in which anyone carried out these duties, regardless of whether or not he was a pharmacist, will not be repeated. Mr. Plum also mentioned the excellent progress pharmacy is making in the Public Health Service and Civil Service.

"Do Pharmaceutical Organizations Properly Serve Their Membership?" was the topic delivered by Richard Daytz of Columbia University, College of Pharmacy. Mr. Daytz claimed that the N. A. R. D., although a constructive organization representing retail drug store owners, should not be considered as representative of American pharmacy, and that only the A. Ph. A. represents the entire profession. Furthermore, the existence of two national pharmaceutical organizations in this country has weakened the fight for pharmacy since neither may lay claim to being the true representative "voice" of pharmacy.

The speaker believes that many pharmacists have withdrawn their support from their associations because they feel that the dues which they paid were not in any manner used to secure for the membership the reforms, services, and enactment of legislation which is so urgently needed. However, he stated that many pharmacists are apathetic toward any advances in pharmacy, and besides not cooperating with their professional organizations, they actually resent their being, some being unscrupulous enough to actively detest any organization powerful enough to be the cause of any limitation of their nefarious practices. Mr. Daytz concluded that if every pharmacist could be made to realize the importance of placing his weight squarely behind the proper organizations under proper and forceful leaders and officials, then the future of pharmacy in this country can be assured of an even greater opportunity to achieve the high level of professionalism it so richly deserves.

The speaker from the Brooklyn College of Pharmacy was Aaron Weiner, whose talk was "Should We Set Up a Grievance Committee to Govern Our Ethics?" Mr. Weiner, after outlining the pharmacist's responsibilities to the public, to the physicians and other members of the healing arts and to the pharmaceutical profession, spoke about the formation of grievance committees which would be in charge of investigating and correcting unethical practices. It was the speaker's opinion that the formation of grievance committees may be best carried on at the state level by state pharmaceutical organizations, and that the A. Ph. A. might well set up a national committee for purposes of advising the state grievance committees.

Mr. Henry M. Guziejeski, St. John's College of Pharmacy, addressed the assembly on "Are Laws Governing Pharmacy Equitable and Enforceable?" He brought out emphatically that although most laws pertaining to pharmacy are equitable and enforceable, there are many whose equitability are debatable. The speaker insisted that the following questionable problems be further studied: the prescription refill situation, the laws of reciprocity, and the sole ownership of drug stores by registered pharmacists only.

The final talk of the morning session was delivered by Samuel Jaffe of Rutgers College of Pharmacy, his topic being "Are Our Interprofessional Relations Workable?" His conclusion to the question in the title of his address is no; under pharmacy's present organization, its pattern of interprofessional relations is not workable. He suggested that local level groups should embark on projects which

can be most constructive and will improve the status of all professional groups in the eyes of the general public and among themselves.

Afternoon Session

In the afternoon session, the representatives who participated in the morning session took part in a panel discussion where they answered questions from the floor of the assembly. The last hour of the afternoon session was given over to the discussion of tentative resolutions which will be scrutinized by a formal Resolutions Committee appointed by the branches participating in the conference. This committee will draft resolutions which will be submitted to the Senior Branch of the A. Ph. A. for their consideration at its annual convention in Buffalo this summer.

Dr. Robert P. Fischelis, secretary of the A. Ph. A. and a guest at the conference, closed the proceedings with an informal talk expressing his views of the day's proceedings. Praising the role played by the participants of the conference, Dr. Fischelis clarified some questions which arose during the day, and expressed the views of the A. Ph. A. concerning the prescription refill problem and its obtainment of membership.

Discussion

The A. Ph. A. Student Conference, 1951, gave students of pharmacy the opportunity to express their concepts of present day pharmacy in a free and unbiased manner. They shared their ideas and debated vigorously, resulting in a clear understanding of each other's views and problems in pharmacy. It would be well for pharmacy if many of its present members, who show a complete lack of interest in its matters, would catch the spark exhibited by those students taking part in the conference.

Too much acknowledgment cannot be paid to Mr. Louis E. Kazin, the advisor to the A. Ph. A. Student Branch of Rutgers University, College of Pharmacy. It was because of his enthusiastic and persistent leadership that this conference was carried out so successfully.

Let us hope that the A. Ph. A. Student Conference, 1951, will be the spark needed for the initiation of annual Student Branch meetings throughout the country, and that they will be participated in as enthusiastically as this initial conference.

SELECTED ABSTRACTS

Amebicidal Properties of the New Antibiotic, Fumagillin. McCowen, M. C., Callender, M. E., and Lawlis, J. F., Jr. *Science 113:202* (1951). The antibiotic, Fumagillin, isolated from a species of Aspergillus was found to be capable of inhibiting *Staphylococcus aureus* 209 bacteriophage, but it had little or no activity against bacteria, fungi, and viruses. However, in this preliminary report the authors stated that they found that *in vitro* the antibiotic was a powerful amebicide against *Endamoeba histolytica.* A crude concentrate effectively inhibited the growth of the amebae in the absence of bacteria in a dilution of about 1:4,000,000. In the presence of growing bacteria there was no appreciable difference and so the authors concluded that the antibiotic acted directly upon the amebae. The crystalline form showed activity in a concentration as low as about 1:131,000,000.

A few studies on the *in vivo* activity of this antibiotic revealed that four divided doses over two days totalling 36 mg. per Kg. for the crude concentrate and 11 mg. per Kg. for the crystalline form cleared young rats of cecal infestations with *E. histolytica.* There was no evidence of antibacterial activity against the intestinal flora of the rats. Experimental amebiasis was cleared from young rabbits by a series of four doses of the antibiotic over a period of 2 days and to a total dose of 100 mg. per Kg.

The authors also reported that the antibiotic was found to be ineffective against *Trypanosoma equiperdum, T. gambiense,* and *Spirochaeta novyi* infections in mice.

Stability of Vitamin B_{12} Solutions. Hartley, F., Stross, P. and Stuckey, R. E. *J. Pharm. Pharmacol. 2:*648 (1950). The stability of solutions of vitamin B_{12} was studied by the authors with regard to the effect of light, pH, heat, and bacteriostatic agents. The samples studied were assayed, in most cases, by both spectrophotometric determinations and by microbiological assay with *Lactobacillus lactis* Dorner.

The authors found that when the aqueous solution of the vitamin had a pH of 4.0 to 7.0 there was no significant change in the vitamin content when the solutions were exposed to diffused daylight for one week but, there was considerable loss when exposed to sunlight for a few days.

At a pH of 4.0 and 7.0 aqueous solutions of the 90 to 95 per cent pure vitamin were stable at normal temperatures, but autoclaving for 30 minutes at 115° C. resulted in a small but significant loss. When a vitamin B_{12} solution having a purity of 70 per cent and a pH of 5.0 was autoclaved there was a greater loss of potency. When the pH was maintained at 2.0, 9.0 or 12.0 there was pronounced instability, particularly when heated.

Tests with bacteriostatic agents added to the solutions indicated that pure vitamin B_{12} was stable in the presence of 0.5 per cent phenol and 0.3 per cent cresol when stored for 2 months.

The authors concluded that aqueous solutions of vitamin B_{12} are stable during normal handling for analysis and packaging but that the application of heat should be avoided. They recommended that sterilization be accomplished by filtration and that a bacteriostatic agent be added if necessary. The pH of the solutions should be maintained between 4.5 and 6.5 for maximum stability.

Parenteral Vitamin Therapy in the Treatment of Acne. Kline, P. R. *Arch. Dermatol. Syphilol. 62:*661 (1950). The use of vitamin A in the treatment of acne has received considerable attention during recent years. Large doses of vitamin A have been shown to produce improvement in acne in a rather high percentage of cases. The development of aqueous dispersions of the vitamin have resulted in higher rates of absorption, higher liver storage and decreased excretion when compared with oil solutions. Parenteral injection of vitamin A has been found to be superior to oral administration. Although there was no defect in the absorption of vitamin A from the gastrointestinal tract the parenterally administered vitamin appeared to be more effective than that which first passed through the liver, according to recent studies.

Interaction between the sex hormones and vitamins has become evident as a result of other studies. It has been found that in the

presence of vitamin A deficiency follicular hyperkeratosis occurred frequently at the time of puberty. A link with liver function, and thus proper utilization of vitamin A, was found in that the liver is not able to inactivate estrogen in the presence of vitamin B deficiency. Thus, a disturbance in the balance of sex hormones, as during adolescence or the period of the menstrual cycle may produce relative inactivation or antagonism sufficient to produce acne. Since vitamin A is easily destroyed by enzymes and oxidants in the intestinal tract, and, since vitamin E is an antioxidant it has been suggested that vitamin E be included in vitamin preparations used for the treatment of acne.

In view of this experimental and clinical background the author treated 40 patients, 25 of whom were treated long enough to be included in the report, with intramuscular injections of 2 cc. of an aqueous dispersion of multiple vitamins (Vi-Syneral), at intervals of one week and for a period of 8 months. The patients ranged in age from 15 to 35 years and, all had undergone previous treatment, including such as local applications, roentgen ray therapy, vaccines, and hormones.

All but one of the 25 patients reported showed marked improvement. In most cases a pronounced improvement was observed within 3 to 6 injections. The most rapid results were obtained in cases of cystic acne. This was in contrast to the poor results previously reported from oral administration of vitamin A in this condition. The most rapid response was obtained in the younger patients. The author also stated that there was little tendency to relapse after treatment was discontinued, as contrasted with a previous report relative to the use of an aqueous multivitamin dispersion administered orally.

The Reactions of Bacteria to Chemotherapeutic Agents. Garrod, L. P. *Brit. Med. J. No. 4700*:205 (1951). Contact with chemotherapeutic agents cause bacteria to react in four ways. In the first place there may be suppression of activity resulting either in direct lethal action or in the inhibition of further growth. This reaction is, of course, the aim of treatment.

The second reaction is habituation or acquired resistance and is a path of escape from the suppressive influence of the drug. The sulfonamides are chemotherapeutic agents against which almost all species can become resistant and, in many cases, resistance to one drug involves resistance to other sulfonamides. The mechanism by which this occurs is the formation of a sulfonamide inhibitor, known in some cases to be *p*-aminobenzoic acid. The meningococcus is the only organism causing acute infections against which the sulfonamides are used in preference to other agents. No resistant strains have appeared even though the closely related organism, the gonococcus, was the first organism showing the development of resistant strains.

Acquired resistance to penicillin apparently occurs by selection and not by adaptation, the same as is the case with the sulfonamides. The resistance is dependent upon the formation of the enzyme penicillinase, at least in the case of staphylococci and a number of other bacteria. Hemolytic streptococci of group A and *Treponema pallidum* are apparently incapable of developing resistance. Although other bacteria become more resistant to the antibiotic after exposure to it there seems to be no evidence that there is a widespread resistance to penicillin developing, except with the staphylococci.

With streptomycin it appears that all species of bacteria can become highly resistant to this drug and often within only 24 hours. Tubercle bacilli can become resistant but at a much slower rate. Therefore, treatment should be vigorous in order to prevent the development of resistance insofar as possible. The development of resistance apparently arises as a result of the presence of a minute proportion of resistant cells in the original population. When resistance does develop it is permanent.

Resistance to aureomycin, terramycin, and chloramphenicol is at least slow to develop, moderate in degree, and not necessarily permanent. Perhaps time will show a progressive resistance developing against these antibiotics. In the few cases where resistance to terramycin has developed, the organisms were also resistant to aureomycin and chloramphenicol.

The reaction of dependence is the third adjustment certain bacteria have made toward chemotherapeutic agents. This phenomenon of nutritional dependence upon a substance normally lethal has been observed particularly with streptomycin and meningococci, although other bacteria have been reported as showing the

same effect. A resistant variant of *Bact. friedländeri* has been found which is dependent for growth upon a critical concentration of chloramphenicol and a variant of meningococci has been found to be conditionally dependent on penicillin in that they require penicillin to grow in a deficient medium but grow without it in a richer one.

The fourth type of bacterial reaction is stimulation; the stimulation of bacteria rather than the desired effect of suppression. There seems to be good evidence that this effect is produced by concentrations lower than those required to inhibit growth. Such concentrations may be very low in sensitive organisms but very high in resistant ones. From a clinical point of view the evidence for this reaction lies largely with the occurrence of superinfections during treatment with penicillin; the replacement of normal flora by a resistant bacteria. There seems to be evidence that this phenomenon bears particular watching in connection with tubercle bacilli, for the author found evidence in a number of cases in which previously unrecognized or quiescent cases of tuberculosis developed during treatment with penicillin for some other condition. *In vitro* the author demonstrated the phenomenon by the larger colonies of *Pseudomonas pyocyanea* on the side of a divided nutrient plate containing 4 units of penicillin per cc. Three factors seemed to enhance this effect; dormant cells from an older culture, poor medium, and a temperature a few degrees below 37° C.

The Availability of Fluorine in Sodium Fluoride as Compared with Sodium Fluosilicate. McClure, F. J. *Pub. Health Rep. 65:*1175 (1950). Because of the lower cost of sodium fluosilicate as compared with sodium fluoride a study was instituted to determine the relative availability of fluorine from the two salts. Growing rats were used as the test animal. The levels of fluorine in the drinking water in this study were 5, 10, 15, 25, and 50 ppm.

The author reported that as a result of this study no significant differences were found in the amount of fluorine deposited in the teeth and in the skeletal tissues of the animals. There was also no difference in the ash, calcium, and phosphorus content of the teeth which could be related to the kind of fluoride ingested. While the appearance on the incisor teeth of the characteristic striations varied

with the fluorine level there was no variation which could be related to the source of the fluorine. A concentration of 5 ppm. fluorine in the drinking water produced no evident striations but at 10 ppm. and above striations were evident. At 25 ppm. and over considerable spotty depigmentation occurred. No difference was evident in the average rate of growth of the rats in the two groups.

The author stated that as further data is obtained, particularly with reference to the dental caries effect, it will probably be possible to draw conclusions as to the feasibility of substituting sodium fluosilicate for sodium fluoride in the fluoridation of community drinking water.

BOOK REVIEWS

Industrial Chemicals. By W. L. Faith, Director of Engineering, Chemical Division, Corn Products Refining Company; Donald B. Keyes, Vice-President, Heyden Chemical Corporation; and Ronald L. Clark, Fellow, Mellon Institute. John Wiley and Sons, Inc., 440 Fourth Avenue, New York 16, N. Y., 1950. xi + 652 pp. 15.5 x 23.5 cm. Price, $8.00.

This volume describes technical and economic information on 107 industrial chemicals. The discussion of each chemical follows the pattern:

(1) Flow Sheet.

(2) Reaction (Equations, Yield).

(3) Material Requirements (Basis—1 ton).

(4) Process (Description).

(5) Use Pattern.

(6) Miscellaneous (Properties, Grades, Containers and Regulations).

(7) Economic Aspects (Use, Size, Distribution and Cost of Plants).

The book will prove useful as a source of information for the general process and the economics of each of the listed substances. The data has been accumulated from Government publications, various periodicals, advertising literature and private communications.

N. RUBIN

Handbook of Antibiotics. By A. L. Baron, Research Division, S. B. Penick Co. 303 pages incl. index. Reinhold Publishing Corp., New York, 1950. Price $6.50.

The literature on antibiotics, today, is exceedingly voluminous and it is not an easy matter to find certain specific information concerning a given antibiotic. The author of this book has performed a very valuable service in compiling the most important data relative to a very comprehensive list of over 140 antibiotic substances.

Each antibiotic is listed alphabetically and the subject matter under each arranged in such appropriate sections as production, chemistry, properties, antibacterial spectrum, assay, pharmacology, etc. The information given is concise and authoritative with literature references cited in support of almost every statement made. The reader can within a few moments obtain almost all the important facts about some common or obscure antibiotic without reading page after page of some lengthy treatise.

In addition to the main body of the book as described there is a chapter, "Certification of Antibiotics" by Henry Welch of the Food and Drug Administration and two chapters by Walter J. Derenberg, Trade-Mark Counsel, U. S. Patent Office. These are titled "Selection and Registration of Trade-Marks for Antibiotics" and "Existing Registrations for Basic Antibiotics."

The authors have done a commendable job of preparing a most useful, ready reference on antibiotics and one which should prove very popular.

L. F. Tice

First Family

of the antihistaminic set

BENADRYL®

The first antihistamine to be made clinically available in this country, BENADRYL, provides a complete variety of forms for every prescription purpose—truly a leader in its field. Clinical performance in the treatment of hay fever and other allergies has assured its position with your physicians. Why not take advantage of BENADRYL's reputation and turnover record by stocking *all* the product forms your physicians will specify?

BENADRYL HYDROCHLORIDE KAPSEALS®
Each Kapseal contains 50 mg. of BENADRYL hydrochloride (diphenhydramine hydrochloride, Parke-Davis). Supplied in bottles of 100 and 1000.

BENADRYL HYDROCHLORIDE CAPSULES
Each capsule contains 25 mg. BENADRYL hydrochloride. Supplied in bottles of 100 and 1000.

BENADRYL HYDROCHLORIDE ELIXIR
Each teaspoonful (4 cc.) contains 10 mg. of BENADRYL hydrochloride. Supplied in 16-ounce and 1-gallon bottles.

BENADRYL HYDROCHLORIDE STERI-VIALS®
Sterile solution for parenteral use containing 10 mg. of BENADRYL hydrochloride in each cc. of solution. Supplied in 10 cc. Steri-Vials.

BENADRYL HYDROCHLORIDE CREAM
Contains 2% BENADRYL hydrochloride in a water-miscible base. Supplied in 1-ounce and 2-ounce collapsible tubes.

BENADRYL HYDROCHLORIDE EMPLETS®
For delayed antiallergic action. Each enteric-coated Emplet contains 50 mg. of BENADRYL hydrochloride. Supplied in bottles of 100 and 1000 Emplets.

KAPSEALS BENADRYL HYDROCHLORIDE WITH EPHEDRINE SULFATE
Each Kapseal contains 50 mg. BENADRYL hydrochloride and 10 mg. of ephedrine sulfate. Supplied in bottles of 100 and 1000 Kapseals.

PARKE, DAVIS & COMPANY

American Journal of Pharmacy

The American Journal of Pharmacy is the oldest continuously published scientific periodical of its kind in America, having been established by the Philadelphia College of Pharmacy in 1825. After the original issue there were three other preliminary numbers until 1829, when regular publication began. From then until 1852 four issues were published annually, with the single exception of 1847, when an additional number appeared. Six issues a year were printed from 1853 to 1870, at which time the Journal became a monthly publication.

Former Editors of the Journal have been: Daniel B. Smith, 1825-1828; Benjamin Ellis, 1829-1831; Robert E. Griffith, 1831-1836; Joseph Carson, 1836-1850; William Procter, Jr., 1850-1871; John M. Maisch, 1871-1893; Henry Trimble, 1893-1898; Henry Kraemer, 1898-1917; George M. Beringer, 1917-1921, and Ivor Griffith, 1921-1941.

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